Dan River Steering Committee Meeting #1
May 8, 2007

1.   Description of impairments and violation rates

TMDLs are being developed for Virginia DEQ impaired segments within the Dan River Watershed:
- 12 segments are impaired due to violations of the bacteria recreation standards
- 1 segment in the Smith River Watershed is impaired for not meeting the aquatic life use standard.
  - A stream is considered benthic/biologically impaired when the macroinvertebrate community does not have the same composition of a stream not effected by pollution (i.e. species that are sensitive to pollution are not present)

| Segment #	TMDL ID	Stream Name	Miles	Impairment	Violation Rate
1	VAW-L52R-02	Blackberry Creek	14.82	Fecal Coliform	3/20
2	VAC-L62R-04	Byrds Branch	2.98	Fecal Coliform	3/9 & 4/9*
3	VAC-L60R-01	Dan River	36.79	*E. Coli*	3/13 & 5/13*
4	VAC-L62R-03	Double Creek	8.28	Fecal Coliform	3/28
5	VAC-L61R-01	Fall Creek	2.3	Fecal Coliform	5/25
6	VAW-L56R-01	Leatherwood Creek	8.34	Fecal Coliform	3/23
7	VAW-L55R-01	Marrowbone Creek	4.33	Fecal Coliform	4/29
8	VAW-L46R-01	North Mayo River	22.46	Fecal Coliform	3/25 & 3/9*
9	VAC-L58R-01	Sandy River	7.21	Fecal Coliform	7/25
10	VAW-L53R-01	Smith River	6.95	Fecal Coliform	9/59
11	VAW-L54R-01	Smith River	13.77	Fecal Coliform	6/35 & 6/35*
12	VAW-L45R-01	South Mayo River	10.86	Fecal Coliform	2/16

* Data for two water quality listing stations
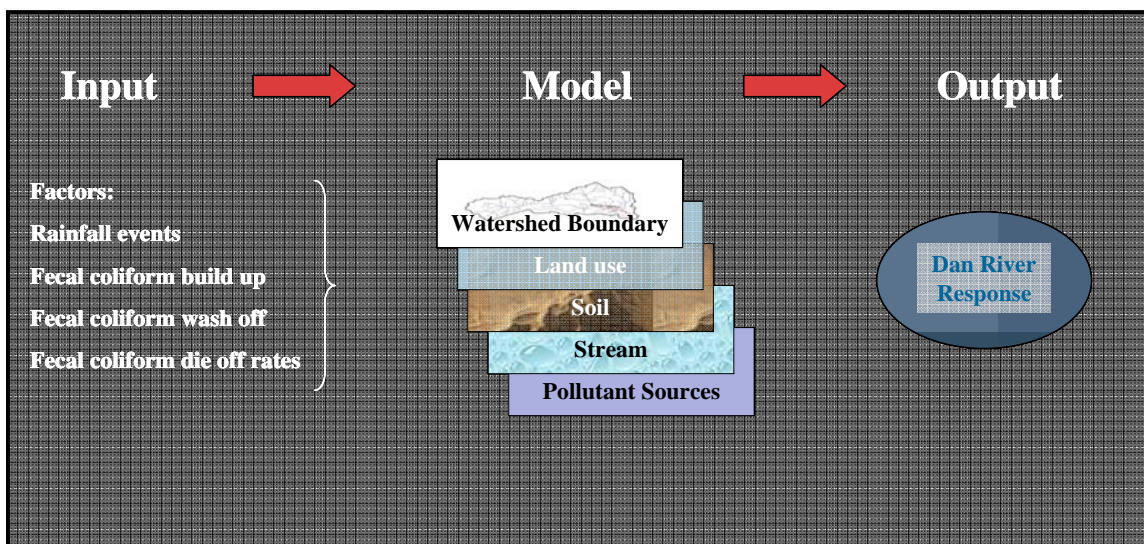
Discussion Questions:

1. Do you have any questions about where the impairments are?

2. Have you suspected that there were water quality concerns in these streams or is this the first time you have heard of these concerns?

3. Are these violation rates surprising to you? Why or why not?

2.   The Water Quality Model

What is the TMDL Process?
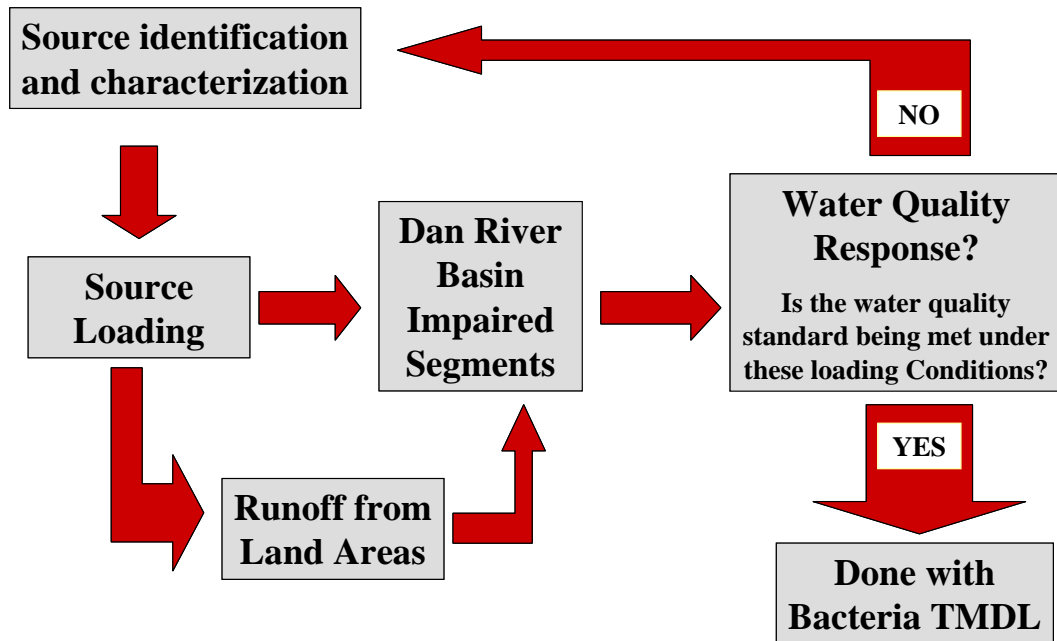
How does the <u>H</u>ydrologic <u>S</u>imulation <u>P</u>rogram <u>F</u>ortran Model Work?

Discussion Questions:

1. Do you have any questions on how this model works?

3.   What types of data go into the model?

Types of Data:
- Watershed physiographic data (elevation, land use, soils)
- Hydrographic data
- Weather data
- Point sources and direct discharge data and information
- Environmental monitoring data
- Stream flow data
- Bacteria sources characterization data

Discussion Questions:

1. Can you think of any other factors that we should consider?

4.   Preliminary summary of the overall source numbers for VA and NC

Population Data: Based on 2004 United States Census Data
- Population in the study area is approximately 384,273 people
- There are approximately 152,393 households within the study area
- Sewage Disposal Methods
  - Sewer Systems (predominantly cities)
  - Septic Systems
  - Other Systems (assumed to be no waste management, or "straight pipe")
- Failing septic systems and straight pipes near stream channels can contribute significant sewage to the watershed streams.
  - An estimated 189 septic systems within 200 ft of a stream are failing in the Dan River Watershed (based on a 3% failure rate)
  - Within a 200 ft of a stream, there are approximately 421 straight pipes discharging to the stream

Properly Functioning System

Failing System
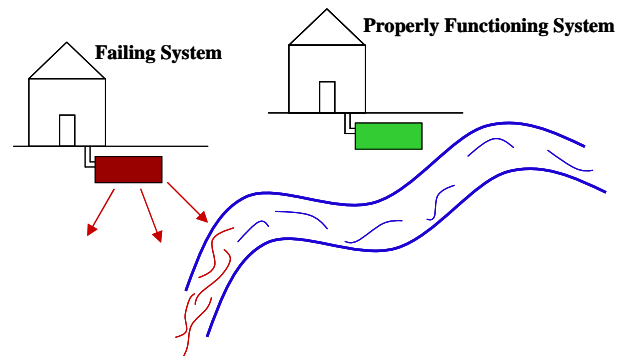
Pet Estimates
- Pet inventories based on:
  - 0.543 Dogs per household*
  - 0.598 Cats per household*
- In the study area there are approximately:
  - 82,749 Dogs
  - 91,131 Cats

Point Source Data:

State	Category	Permit Type	Number (Active/Application)
VA	NPDES	Industrial	11
		Municipal	13
	General Permit	Residence	27
		Business	5
		CAFO*	8
	Total		**64**
NC	NPDES	Industrial	16
		Municipal	17
		Domestic	24
	General Permit	CAFO*	14
	Total		**71**
	Overall Total		**135**

*Permits are issued for animal feeding operations with 300 or more animal units

Livestock Estimates within the Study Area:

VA City/ County*	Livestock Type*					
	Beef Cows	Milk Cows	Hogs and Pigs	Sheep and Lambs	Chickens	Horses
Carroll	19	1	0	1	0	3
Danville	0	0	0	0	0	0
Floyd	343	27	0	18	130	45
Franklin	1,067	639	31	0	79	115
Halifax	5,266	97	6,036	51	28,135	440
Henry	0	0	0	27	296	580
Martinsville	0	0	0	0	0	0
Mecklenburg	262	21	1	0	0	26
Patrick	7,286	687	54	253	196	853
Pittsylvania	6,217	1,017	1,116	85	0	636
South Boston	0	0	0	0	0	0
VA Total	*20,460*	*2,490*	*7,238*	*434*	*28,836*	*2,697*

*Livestock numbers are based on the 2002 US Agricultural Census data and the horse numbers were based on the
2001 VA Agricultural Statistics Equine report.

NC County	Livestock Type*					
	Beef Cows	Milk Cows	Hogs and Pigs	Sheep and Lambs	Chickens	Horses
Caswell	3,618	366	347	64	151,118	289
Forsyth	643	102	15	61	0	840
Granville	200	17	60	10	122	57
Guilford	78	23	104	5	1,350	65
Orange	96	38	0	16	2,221	52
Person	2,239	203	5,237	59	503	387
Rockingham	3,628	464	4,006	429	0	2,633
Stokes	4,017	188	0	395	99,160	1,110
Surry	351	30	613	19	628,728	69
NC Total	*14,869*	*1,431*	*10,382*	*1,058*	*883,202*	*5,502*
Grand Total for Entire Study Area	*35,329*	*3,921*	*17,621*	*1,492*	*912,038*	*8,199*

*Livestock numbers are based on the 2002 US Agricultural Census data and the horse numbers were based on the
North Carolina Department of Agriculture and Consumer Service2006 Equine report.

Wildlife Estimates within the Study Area:

VA County	Wildlife Animal*							
	Deer	Raccoon	Muskrat	Beaver	Goose	Mallard	Wood Duck	Wild Turkey
Carroll	12	16	70	8	1	0	0	3
Dansville	1,335	1,285	5,555	606	114	4	4	284
Floyd	441	352	1,520	166	38	1	1	94
Franklin	3,038	3,230	13,960	1,523	259	10	9	646
Halifax	10,882	11,131	48,102	5,248	926	35	31	2,315
Henry	11,042	11,416	49,335	5,382	940	36	32	2,349
Martinsville	272	276	1,194	130	23	1	1	58
Mecklenburg	413	413	1,785	195	35	1	1	88
Patrick	13,257	13,379	57,815	6,307	1,128	42	38	2,821
Pittsylvania	9,386	9,213	39,813	4,343	799	29	26	1,997
South Boston	80	101	438	48	7	0	0	17
VA Total	*50,158*	*50,813*	*219,587*	*23,955*	*4,269*	*160*	*144*	*10,672*

*Estimates are based on NLCD 2001 land use data and distribution estimates from DGIF

NC County	Wildlife Animal*							
	Deer	Raccoon	Muskrat	Beaver	Goose	Mallard	Wood Duck	Wild Turkey
Caswell	11,582	11,787	50,939	5,557	986	37	33	2,464
Forsyth	2,500	2,634	11,385	1,242	213	8	7	532
Granville	735	784	3,390	370	63	2	2	156
Guilford	222	257	1,110	121	19	1	1	47
Orange	143	223	962	105	12	1	1	31
Person	7,647	7,546	32,608	3,557	651	24	21	1,627
Rockingham	13,947	13,417	57,981	6,325	1,187	42	38	2,967
Stokes	12,047	12,014	51,916	5,664	1,025	38	34	2,563
Surry	521	535	2,314	252	44	2	2	111
NC Total	*49,344*	*49,198*	*212,604*	*23,193*	*4,199*	*155*	*139*	*10,499*
Grand Total for Entire Study Area	99,502	100,011	432,191	47,148	8,468	314	283	21,171

*Estimates are based on NLCD 2001 land use data and distribution estimates from DGIF

Discussion Questions:

1. Do these numbers seem reasonable to you?

2. Are there any suggestions you would make?

3. Are there any sources that you would suggest to include?

5. Land Use Data
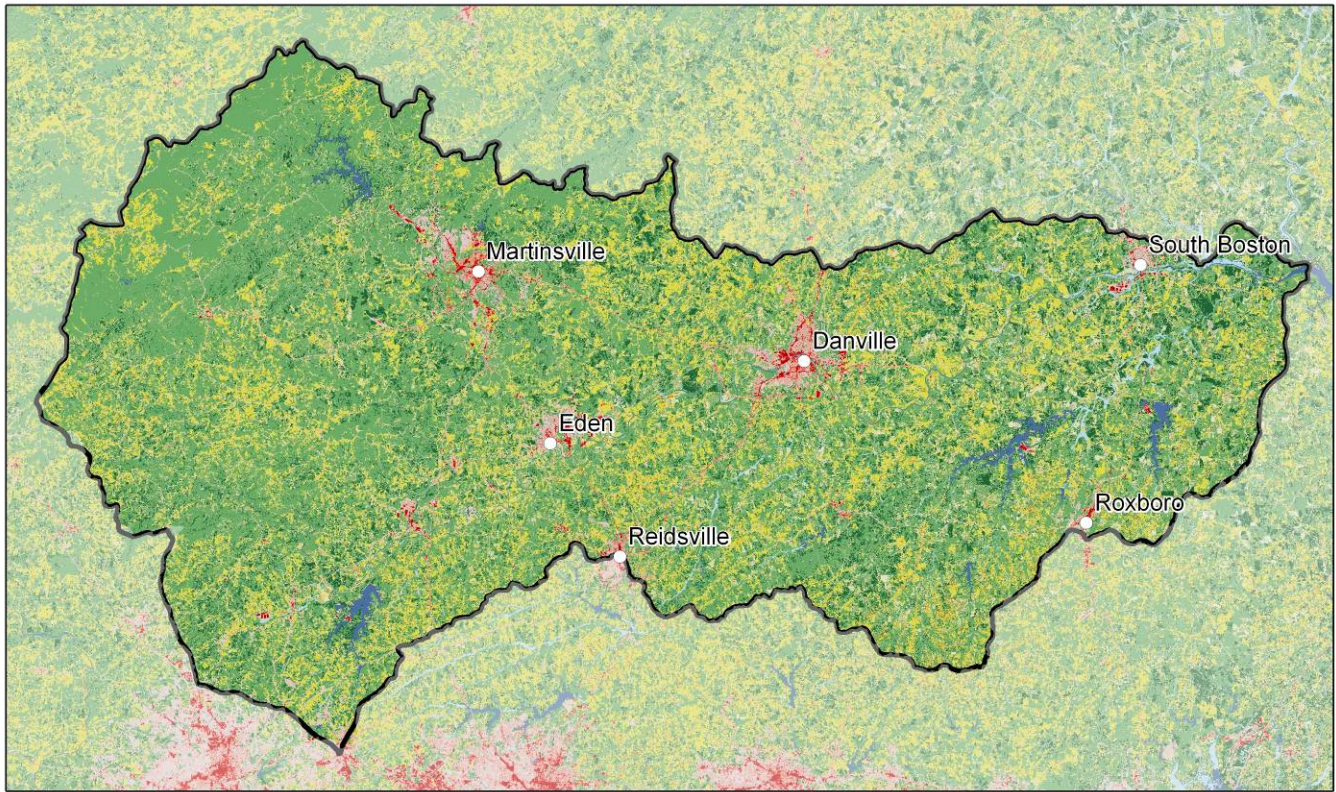
Land Cover Type	Water/ Wetlands	Developed	Agriculture	Forest	Grassland/ Shrub	Barren	Total
Acres	43,321	151,834	402,758	1,367,262	148,452	3,480	2,117,107
Percent Area	2%	7%	19%	65%	7%	0%	100%

Discussion Questions:

How is land use in your community changing and how could these changes potentially affect the bacteria levels in streams?